UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
999 18TH STREET - SUITE 300
DENVER, CO 80202-2466

July 28, 2003

Ref: 8P-W-GW

Gary Beach
Water Quality Division
Department of Environmental Quality
Herschler Building
122 West 25th Street
Cheyenne, Wyoming 82002

Re: Request Regarding Potential for Extending the Existing Exemptions/Wyoming Ground Water Classifications at Class III Uranium Operations in Wyoming.

Dear Mr. Beach:

I am responding to your request that EPA Region 8 consider modifying certain existing aquifer exemptions to enlarge them for a justifiable distance outside the outer monitoring well perimeter at existing in-situ uranium facilities in Wyoming, by expanding the existing area of Class V(M) State ground water classification and subsequently seeking EPA approval of that area as an exempted aquifer. It is EPA's understanding that this increase is being sought by Class III injection well operators to create a so-called "buffer" zone around the Class V (M)/exempted area, and is connected to the Wyoming Department of Environmental Quality (WDEQ) efforts to modify existing restoration requirements required under the Land Quality Division (LQD) Rules relating to in-situ uranium mining and Chapter VIII of the Water Quality Division (WQD) Regulations. As a result of your request, we have re-examined various issues, regulations and policies relating to the identification of underground sources of drinking water (USDWs) and exemption of aquifers subsequent to program approval, and specifically rules pertaining to ground water classifications/aquifer exemptions made as part of Wyoming issuing a Class III injection well uranium mining Permit.

After considering your proposal we have concluded that any increase to the size of an existing area of Class V(M) State ground water classification, and EPA's approval of that area as an exempted aquifer through a revision of the delegated Underground Injection Control (UIC) Program, must be accomplished by applying the same regulations and criteria that governed the original ground water classification and aquifer exemption approval. EPA's past approvals of Wyoming's classifications/exemptions have been based on a demonstration that the area defined as Class V(M) ground water

was considered to be commercially mineable and otherwise qualified for exemption. Although the area between the actual mining panels and the outer ring of monitoring wells, or exemption boundary, was not slated to be mined under that mining plan demonstration, because the levels of some constituents such as uranium or radium were generally elevated due to the presence of some mineralization and otherwise met criteria for an aquifer exemption, this area was included to provide a reasonable area suitable for excursion monitoring.

Please refer to the attached *Background and Detailed Considerations* for additional information. If you have any questions, please contact Paul Osborne at 303-312-6125, or me at extension 303-312-6260. Our Associate Regional Counsel, Mr. Steven Moores also is available to answer legal questions at 303-312-6857or by e-mail at moores.steven@epa.gov.

Sincerely,
Original signed by Judy Wong

Judith Wong
Director
Water Program

Attachment: Background and Detailed Considerations

cc: Richard A. Chancellor, Administrator LQD
John Corra, Director WDEQ
Stephen S. Tuber, Assistant Regional Administrator EPA Region 8
Bruce Kobelski, OGWDW

BACKGROUND AND DETAILED CONSIDERATIONS

A. WYOMING'S GROUND WATER CLASSIFICATION SYSTEM AND EPA'S AQUIFER EXEMPTION CRITERIA

Wyoming DEQ Ground Water Classification System: The WDEQ does not regulate injection wells using EPA's well classification system or directly use its definition of a USDW and associated aquifer exemption system. Instead, WDEQ classifies ground water by its existing use or by potential use based on appropriate standards listed in Chapter VIII of the Water Quality Rules and Regulations. These WDEQ ground water classes are as follows:

- Class I suitable for domestic use.
- Class II suitable for agricultural use where soil conditions are adequate.
- Class III suitable for livestock.
- Class Special A - suitable for fish and aquatic life.
- Class IV - suitable for industrial use.
- Class V (H) - ground water associated with hydrocarbons.
- Class V (G) - geothermal ground water.
- Class V (M) - ground water associated with commercial mineral deposits.
- Class VI - ground water unsuitable for use.

During discussions on delegation of Primary enforcement authority for Class I, III, IV and V wells in Wyoming to the Department of Environmental Quality, the WDEQ argued that Wyoming's system provided equivalent procedures, even though the State system does not explicitly define the resource to be protected as an underground source of drinking water (USDW) or provide for an exemption process similar to that in EPA's rules[1]. Some key points from the program description that relate to Wyoming's classification system areas are as follows:

1. Wyoming Class I, II, III, Special A, IV, and V ground waters will receive no waste injection;
2. all EPA Class III types of injection activities must be permitted as either a commercial operation or as a research and development project;
3. commercial EPA Class III projects must be permitted with public notice and opportunity for hearing;
4. all EPA Class III wells must occur in aquifers which are classified as Class V (M) ground waters of the State; and
5. ground water can be designated as a Class V ground water only if the aquifer

[1] Pages 2 -,through 6 of the WDEQ UIC Program Description, submitted as part of the State's primacy application, outlined how the classification system operates, how it provides for an equivalent procedure to EPA's exemption process, and what types of injection practices are permitted in various classes of ground waters.

contains potentially producible minerals and it is not currently being used for another use.

During primacy review and negotiation, it was determined that the WDEQ system of Ground Water Classification was equivalent to EPA's exemption criteria found at 40 CFR 146.4.

Federal Aquifer Exemption Criteria: Federal UIC regulations set minimum requirements for the protection of all USDWs as defined by 40 CFR 146.3. These regulations prohibit the unauthorized injection of fluids at 40 CFR 144.11. Regulations at 40 CFR 144.12(a) and (b) also prohibit authorization of an injection by permit or rule which would cause a movement of fluid containing any contaminant into a USDW, **if the presence of that contaminant may cause a violation of any primary drinking water regulation** under 40 CFR Part 142. Federal criteria for exempting an aquifer, found at 40 CFR 146.4, are as follows:

(a) it does not currently serve as a source of drinking water; and
(b) it cannot now and does not in the future serve as a source of drinking water because:
    (1) it is mineral hydrocarbon or geothermal energy producing, or can be demonstrated by a permit application for a Class II or III operation to contain minerals or hydrocarbon that considering their quantity and location are expected to be commercially producible;
    (2) It is situated at a depth or location which makes recovery of water for drinking water purposes economically or technologically impractical;
    (3) It is so contaminated that it would be economically or technologically impractical to render that water fit for human consumption; or
    (4) It is located over a Class III well mining area subject to subsidence or catastrophic collapse; or
(c) The Total Dissolved Solids content of the ground water is more than 3,000 and less than 10,000 mg/liter and it is not reasonably expected to supply a public water system.

Under 40 CFR 144.7, subsequent to Underground Injection Control (UIC) Program approval or promulgation the Director may designate an additional aquifer exemption, or in the case of Wyoming the classification of a portion of an aquifer as Class V(M) ground water, and such a designation is considered a revision of the delegated Program. Under UIC regulations at 40 CFR 145.32, such additional aquifer exemptions may be considered to be non-substantial Program revisions that can become effective upon receipt of a letter from EPA by the Governor or his designated agent, and where the aquifer contains more than 3,000 mg/liter the revision becomes final if the State submits the request for exemption approval in writing and the Administrator has not disapproved the designation within 45 days. [see 40 CFR 144.7(b)(3)]

B. CONSIDERATIONS & RECOMMENDATIONS

Defining the Area of the Exempted Aquifer:

In order for an operator of a Class III well to inject into an aquifer that meets the definition of an USDW, the aquifer must be exempted from protection as a USDW. After delegation of authority for the UIC program to a State, a request for EPA approval of an exemption (or in the case of Wyoming definition of a portion of an aquifer as Class V(M) ground water) is a revision of the delegated UIC Program that is not final until approved by EPA under 40 CFR 145.32[2].

In this case, EPA is concerned that defining an a "buffer" zone that does not meet EPA criteria for an exempted aquifer does not support the goals of the Safe Drinking Water Act (SDWA) to protect USDWs to the maximum extent practicable under the State's requirement that aquifers be restored to "prior use" conditions after mining has ceased. It should be noted that the Region's policy always has been to circumscribe the size of an exemption in order to protect as much of the ground water resource as possible, in compliance with the intent of the SDWA. For example, the Region has denied other requests seeking exemption of a large areal extent not intended for injection solely for the purpose of providing relief from certain regulatory monitoring requirements. The Region believes that exempting an aquifer for this purpose is not within the intent of the SDWA and related preambles, the criteria defined by regulations, or EPA Guidance. As discussed at our meeting of June 4, 2003, it is the Region's policy to only exempt the area out to the outer ring of monitor wells under 40 CFR 146.4(b)(1) which is equivalent to a Class V(M) Ground Water classification.

Alternatively, an operator might be able to demonstrate that the zone should be defined as a Class VI ground water because it is situated at a depth or location which makes recovery of water for drinking water purposes economically or technologically impractical, or it is so contaminated that it would be economically or technologically impractical to render that water fit for human consumption. EPA would carefully review such a proposal.

Post-Mining Restoration:

As discussed in our letter of March 31, 2003, EPA is concerned that post-mining restoration of Class V(M) classified aquifers to the standards of original use classification may not be adequate to reduce certain contaminants sufficiently to assure that ground water migrating into adjacent areas that containing Class I, II, or III ground waters will not endanger these adjacent USDW or result in violations of primary drinking water regulations. Specifically, we are concerned because some of EPA's current Maximum Contaminant Levels (MCLs) such as those for arsenic, uranium and radium are set lower than similar levels in Wyoming's Chapter VIII. In our letter, we suggested that WDEQ include language to Chapter VIII of the WQD regulations similar to that found at 40 CFR 146.10(a)(4) and 40 CFR 144.12 that would require

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[2] *Note: If an aquifer exemption is considered to be a major program revision (see EPA Headquarters UIC Program Guidance No. 34), 40 CFR145.32(b)(2) requires that EPA issue a notice of the change in the Federal Register and give the public a 30 day comment period. Notice of the final action must also be made in the Federal Register.

an operator to demonstrate that the level of ground water restoration will prevent the migration of contaminants into adjacent USDWs that could result in endangerment (exceedance of MCLs). This demonstration could be made by ground water modeling based on site data and/or site monitoring after closure.